UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

ELECTROMAGNETIC SPECTRUM
MANAGEMENT

AFSC 3C1X2

OSSN 2293

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OCTOBER 1997

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION AND TRAINING COMMAND
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PREFACE

This report presents the results of an Air Force Occupational Survey of the Electromagnetic Spectrum Management career ladder, Air Force Specialty Code (AFSC) 3C1X2. Authority for conducting occupational surveys is contained in AFI 36-2623. Copies of this report and pertinent computer printouts are distributed to the Air Force Functional Manager, the operations training location, all major using commands, and other interested operations and training officials.

The survey instrument was developed by Ms. Kimberly G. Williams. First Lieutenant Jason A. Gibson analyzed the data and wrote the final report. Computer programming support and administrative support was provided by Mrs. Jeanie C. Guesman and Mr. Richard G. Ramos, respectively. This report has been reviewed and approved by Lieutenant Colonel Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Additional copies of this report can be obtained by writing to AFOMS/OMYXI, 1550 5th Street East, Randolph AFB Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at http://www.omsq.af.mil.

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SUMMARY OF RESULTS

1. **Survey Coverage**: The Electromagnetic Spectrum Management career ladder was surveyed to validate training requirements and to ensure that members are receiving the right training for their current jobs. The data are also needed to verify changes within the career ladder and to provide input for the development of the career development course materials. Survey results are based on responses from 50 active duty respondents, accounting for 61 percent of the total assigned population.

2. **Specialty Jobs**: One cluster with three underlying jobs was identified in the career ladder structure analysis. This main cluster is oriented toward technical task performance of electromagnetic spectrum management and accounts for 90 percent of the survey population.

3. **Career Ladder Progression**: Skill-level progression for members of this AFSC is typical of most lateral career ladders. Three-skill level personnel spend the vast majority of their job time performing a variety of technical tasks in the Spectrum Coordination Job Cluster. At the 7-skill level, personnel are still heavily involved in a broader array of technical tasks and supervisory activities. Personnel at the 9-skill level begin to become involved with workcenter supervision and an increasing amount of spectrum engineering tasks.

4. **Training Analysis**: The current Specialty Training Standard (STS) is supported by survey data. Several tasks were identified which are not currently being taught in the AFSC awarding course and may be considered for inclusion in future training courses. Also, a number of STS items may be viewed as undertrained or overtrained and should be reviewed by operations training personnel in order to determine the most effective level of proficiency training for these items.

5. **Job Satisfaction**: In general, job satisfaction among AFSC 3C1X2 personnel is very good. Similar findings were noted when the current survey data were compared to the previous survey and to a comparative sample of similar AFSCs. Respondents within the various job groups are satisfied with their jobs. First-assignment personnel responded with high intentions for reenlistment.

6. **Implications**: The current AFSC 3C1X2 career ladder structure reflects an overall normal lateral job progression. One specific job cluster was identified in the career ladder. Overall, job satisfaction is very good among career ladder incumbents. Minor revisions and adjustments are needed for the current STS. Reenlistment intentions for first-assignment airmen are very high, they find their job interesting, and perceive their talents and training as well utilized.

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OCCUPATIONAL SURVEY REPORT (OSR)
ELECTROMAGNETIC SPECTRUM MANAGEMENT
(AFSC 3C1X2)

INTRODUCTION

This is a report of an occupational survey of the Electromagnetic Spectrum Management career ladder conducted by the Air Force Occupational Measurement Squadron. The current Electromagnetic Spectrum Management career ladder was created in October 1993 with the conversion from AFSC 492X2 to AFSC 3C1X2. Survey data will be used to validate training requirements, to evaluate if members are receiving the correct training for their jobs, and to evaluate career development course materials. The last OSR published for the Electromagnetic Spectrum Management career ladder was September 1991.

Background

As described in the AFMAN 36-2108 *Specialty Description*, dated October 1993, Electromagnetic Spectrum Management personnel analyze, request, support, coordinate, and engineer frequencies which support terrestrial, aircraft, and space systems. Duties include: coordinating radio, radar, land, and other electromagnetic radiating or receiving requirements; securing operating authority and ensuring minimum interference caused or received by AF operations; planning high frequency (HF) radio systems using propagation data; reviewing interference reports and resolving interference problems; and inspecting and evaluating electromagnetic spectrum management activities. Senior personnel also experience performing or supervising problem solving electromagnetic spectrum engineering, selection, negotiation, and interference activities.

Electromagnetic Spectrum Management is a lateral Air Force Specialty from the 5-skill level and the following AFSCs: 1A3X1, Airborne Communications Systems; 2A1X3, Communications and Navigation Systems; 2EXXX AFSCs, Communications-Electronics Systems (excluding 2E2X1 and 2E3X1); and 3C1X1, Radio Communication Systems. Personnel entering the AFSC 3C1X2 career ladder must attend the Joint Spectrum Management course at Keesler AFB. Upon completion of this basic course, the members are awarded the 3-skill level (3C132). This course provides spectrum management education for DoD technicians, engineers, managers, and other individuals who require entry-level training on national, international, and DoD spectrum management. Emphasis is placed on those national and international publications and standards having particular impact on the global mission of U.S. military forces.

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Entry into this career ladder currently requires an Armed Forces Vocational Aptitude Test Battery score of GENERAL - 43; a strength factor of "G" (Weight lift of 40 lbs) is also required.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number 2293, dated March 1997. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 17 subject-matter experts (SMEs) at the operations training location and at the following installations:

BASE	UNIT VISITED
Keesler AFB MS	335 TRS/TTMQJ
Langley AFB VA	HQ ACC/SCXS
Wright-Patterson AFB OH	HQ AFMC/SCMF
Davis-Monthan AFB AZ	612 ACOMS/SCXPF

The resulting JI contains a comprehensive listing of 308 tasks grouped under 10 duty headings, and a background section requesting such information as grade, major command (MAJCOM) assigned, organizational level, job title, functional area, job satisfaction, schedule or shift worked, and temporary duty history.

Survey Administration

From April through June 1997, base training offices at operational units worldwide administered the inventory to eligible AFSC 3C1X2 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data files maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who received the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for

each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across MAJCOMs and paygrade groups. All eligible AFSC 3C1X2 personnel were mailed computer survey diskettes. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 3C1X2 personnel as of March 1997. The 50 respondents in the final sample represent 61 percent of the total assigned personnel and 72 percent of the total personnel surveyed. Table 2 reflects the paygrade distribution for these AFSC 3C1X2 personnel.

TABLE 1

COMMAND DISTRIBUTION OF 3C1X2 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
ACC	33	36
AFMC	15	16
PACAF	11	12
AMC	7	12
AETC	6	6
USAFE	9	4
AFSOC	1	2
AFSPA	5	0
OTHER	13	12

TOTAL ASSIGNED = 82*
TOTAL SURVEYED = 69**
TOTAL IN SURVEY SAMPLE = 50
PERCENT OF ASSIGNED IN SAMPLE = 61%
PERCENT OF SURVEYED IN SAMPLE = 72%

*   Assigned strength as of June 1997
** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

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TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-4	1	2
E-5	29	24
E-6	31	38
E-7	35	30
E-8	4	6

* Assigned strength as of June 1997

Both command and paygrade distribution of the survey sample are close to the percent assigned. This indicates the sample is a true representation of the career ladder population.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 3C1X2 personnel (generally E-6 or E-7 craftsmen) also completed a second computer survey for either training emphasis (TE) or task difficulty (TD). These surveys were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 31 senior NCOs who completed TE surveys were asked to select tasks they felt required some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident operations training schools, field training detachments, mobile training teams, formal on-the-job

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(OJT), or any other organized training method. Interrater agreement for these 31 raters was acceptable. The average TE rating was 2.71, with a standard deviation of 1.73. Any task with a TE rating of 4.44 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 29 senior NCOs who completed TD surveys were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-job or first-assignment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS
(Career Ladder Structure)

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group, or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the _Job_. When two or more jobs have a substantial degree of similarity, in tasks performed and time spent on tasks, they are grouped together and identified as a _Cluster_. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, one cluster of three jobs was identified within the career ladder. Figure 1 illustrates the jobs performed by AFSC 3C1X2 personnel.

A listing of the cluster and jobs are provided below. The stage (ST) number shown beside the title references computer printed information, the letter "N" indicates the number of personnel in this cluster.

    I.   SPECTRUM COORDINATION JOB CLUSTER (STG06, N=45)

        A. General Spectrum Coordinator Job (STG08, N=18)
        B. Spectrum Advisor Job (STG12, N=12)
        C. Spectrum Supervisor and Engineer Job (STG14, N=14)

The respondents forming this cluster of jobs account for 90 percent of the survey sample. The remaining 10 percent, for one reason or another, did not group into one of these jobs. Examples of job titles for these personnel include Instructor and Joint RF Spectrum Manager.

AFSC 3C1X2 CAREER LADDER JOBS
(N=50)

Spectrum
Coordination
Job Cluster
90%

Not Grouped
10%
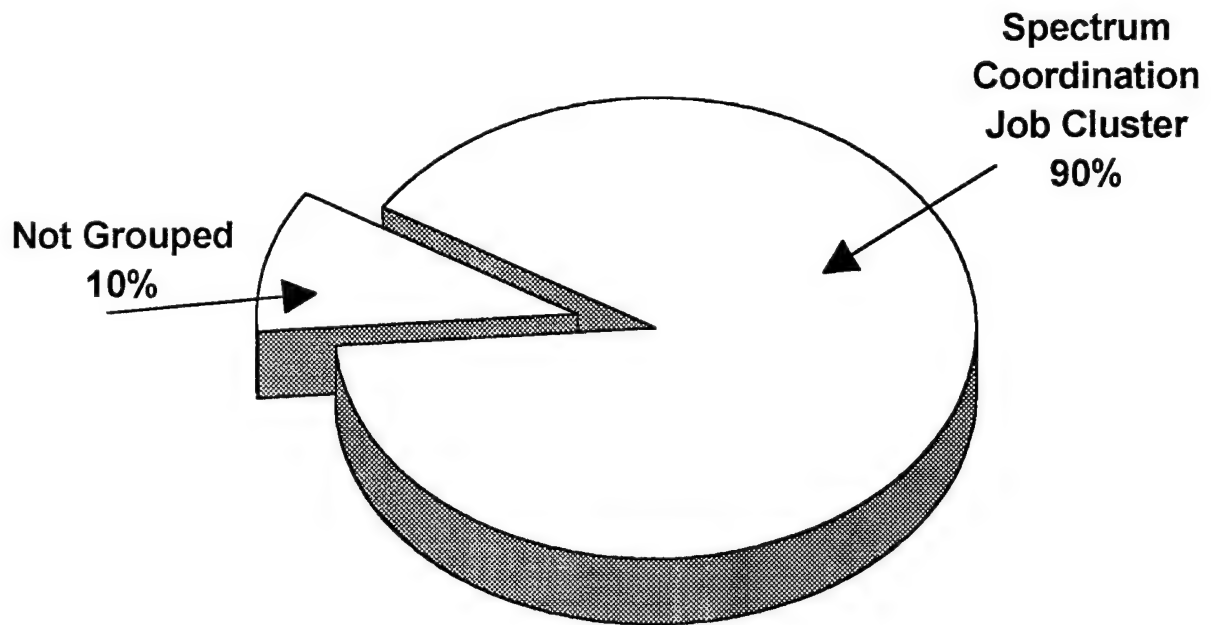
FIGURE 1

Group Descriptions

The following paragraphs contain brief descriptions of the cluster of jobs identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of this specialty cluster. Selected background data for this cluster are provided in Table 4. Representative tasks for all the groups are contained in Appendix A. Table 5 shows a job comparison between the current and 1991 surveys.

I. SPECTRUM COORDINATION CLUSTER (STG06). The 45 airmen performing in this cluster (90 percent of the survey sample) represent spectrum management personnel who spend a high percentage of their time performing general spectrum management duties and standard frequency action format (SFAF) duties. This means personnel within this cluster perform a variety of tasks closely aligned with coordinating, analyzing, and assigning frequencies in support of terrestrial, aircraft, and space systems. They perform an average of 99 tasks indicating a relatively narrow job, with 39 percent of their time performing tasks of general spectrum management activities (Duty A), 21 percent of their time performing tasks of standard frequency action format activities (Duty B), and 13 percent of their time performing management and supervisory activities (Duty G) as reflected in Table 3. Distinctive tasks performed include:

> verify user requirements
> coordinate frequency requests
> perform data base retrievals
> verify that frequency assignments satisfy proposals
> notify users of frequency authorization and operational parameters
> provide spectrum management guidance to customers
> submit temporary frequency proposals
> perform computer startup and shutdown procedures
> nominate frequencies for assignments
> notify users of frequency status

Eighty-two percent of these airmen hold the 7-skill level. None of the job incumbents are in their first enlistment. However, 55 percent of these personnel have less than 4 years in the 3C1X2 career field. The average time in the career field is 57 months. The predominant paygrade is E-6 (36 percent) with a relative proportion of E-7 (33 percent) personnel. Furthermore, 73 percent of these members report they are assigned to units within the United States.

Three distinct jobs were found within this cluster. What distinguishes each job from the other is the number of tasks performed. The first job, General Spectrum Coordinator, involves an average of only 52 tasks. Personnel in this job are primarily in the paygrade of E-5 and complete general spectrum management tasks as those described above. The second job, Spectrum Advisor, involves an average of 103 tasks and is primarily composed of E-6 personnel. Thus, personnel holding this job have a significantly larger number of tasks to perform than the

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previously mentioned job. In addition to performing the general spectrum management core tasks shown above, these personnel carry out a number of tasks involved with management and supervisory activities (Duty G) and administrative and technical order system activities (Duty I). Finally, the third job, Spectrum Supervisor and Engineer, involves an average of 152 tasks and is primarily composed of E-7 personnel. Those performing this job conduct each of the duties described within the previously mentioned jobs, but also involve themselves in a number of frequency engineering tasks such as engineering land mobile radio systems, line-of-sight radio systems, and HF radio systems.

Comparison to Previous Study

Overall, the functions of the AFSC 3C1X2 career ladder structure are very similar when viewed in comparison with the previous 1991 survey of this AFSC. While the types of duties and names for those duties have changed dramatically with the advancement of technology, one main cluster of jobs was also found in the previous survey (see Table 5).

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES IN CLUSTER

DUTIES	SPECTRUM COORDINATION CLUSTER (N=45)	GENERAL SPECTRUM COORDINATOR JOB (N=18)	SPECTRUM ADVISOR JOB (N=12)	SPECTRUM SUPERVISOR & ENGINEER JOB (N=14)
A Performing General Spectrum Management Activities	39	41	38	38
B Performing Standard Frequency Action Format Activities	21	32	19	10
C Performing Communications-Electronics Systems Activities	4	1	2	10
D Performing Siting and Path Activities	2	1	1	5
E Performing Electromagnetic Compatibility (EMC) Activities	4	3	4	4
F Performing Electronic Warfare (EW) Activities	2	2	1	2
G Performing Management and Supervisory Activities	13	7	18	16
H Performing Training Activities	3	2	3	4
I Performing General Administrative and Technical Order System Activities	10	9	11	8
J Performing General Supply and Equipment Activities	3	2	3	3

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TABLE 4

SELECTED BACKGROUND DATA FOR AFSC 3C1X2 CAREER LADDER JOBS

	SPECTRUM COORDINATION CLUSTER (N=45)	GENERAL SPECTRUM COORDINATOR JOB (N=18)	SPECTRUM ADVISOR JOB (N=12)	SPECTRUM SUPERVISOR & ENGINEER JOB (N=14)
AVERAGE NUMBER OF TASKS PERFORMED	99	52	103	152
DAFSC DISTRIBUTION:				
3C132	13%	17%	25%	0%
3C172	82%	83%	75%	86%
3C192	4%	0%	0%	14%
PAYGRADE DISTRIBUTION				
E-4	2%	6%	0%	0%
E-5	22%	33%	25%	7%
E-6	36%	28%	50%	36%
E-7	33%	28%	25%	43%
E-8	7%	6%	0%	14%
AVERAGE MONTHS TICF:	57	36	77	66

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TABLE 5

SPECIALTY JOB COMPARISON BETWEEN CURRENT AND 1991 SURVEYS

CURRENT SURVEY (N=50)	1991 AFSC 492X2 SURVEY (N=65)
SPECTRUM COORDINATION CLUSTER	FREQUENCY MANAGER JOB
GENERAL SPECTRUM COORDINATOR JOB	JUNIOR FREQUENCY MANAGER JOB
SPECTRUM SUPERVISOR AND ENGINEER JOB	SUPERINTENDENT JOB
NOT IDENTIFIED	TRAINING JOB
SPECTRUM COORDINATION CLUSTER	BASE-LEVEL FREQUENCY MANAGER JOB

ANALYSIS OF DAFSC GROUPS

An analysis of Duty AFSC (DAFSC) groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Specialty Description* and the Career Field Education and Training Plan, reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups across the career ladder jobs is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across the skill-level groups. A typical pattern of progression is noted within the lateral AFSC 3C1X2 career ladder. Personnel at the 3-skill level work in technical and somewhat supervisory positions. It should be noted here that these supervisory positions average only two people being supervised. High percentages of 7-skill level members work in each of the jobs within the broader Spectrum Coordination Job Cluster. This makes sense as 7-skill level members make up 82 percent of the sample surveyed. Nine-skill level members perform exclusively more supervisory tasks, but are involved in many technical tasks as well.

Skill-Level Descriptions

DAFSC 3C132. Representing 14 percent of the survey sample, these 7 airmen perform an average of 69 tasks. Eighty-six percent of this group work in the Spectrum Coordination Cluster (Table 6). Breaking that cluster into its respective jobs, one finds that 43 percent of this group work in the General Spectrum Coordinator Job, while the other 43 percent work in the Spectrum Advisor Job. Three-skill level personnel, thus, perform the core spectrum management activities within both of these different jobs.

Representative tasks performed by DAFSC 3C132 incumbents are listed in Table 8. Most tasks are general spectrum management tasks and standard frequency action formatting tasks of Duties A and B respectively, with smaller percentages of tasks distributed between Duties G and H (see Table 7).

DAFSC 3C172. Representing 82 percent of the survey sample, these airmen perform an average of 95 tasks. Ninety percent of these members fall into the Spectrum Coordination Cluster. A relatively even distribution of these members work in each of the jobs within this cluster, the most working as General Spectrum Coordinators at 37 percent (see Table 6).

Table 9 lists the representative tasks performed by DAFSC 3C172 personnel. Table 7 shows that 7-skill level members spend similar amounts of time on the same duties as 3-skill level members. However, an analysis of Table 10 shows that there a number of technical tasks which differentiate 3- from 7-skill level members. The tasks involve duty areas A, C, and E and can all be described as highly technical tasks.

DAFSC 3C192. These two members represent 4 percent of the survey sample, performing an average of 160 tasks. Both of these airmen work in the Spectrum Supervisor and Engineer Job (see Table 6).

Thirty-seven percent of their time is spent performing general spectrum management activities of Duty A, with another 18 percent of their time performing management and supervisory activities (Table 7). Table 11 lists representative tasks performed by these members. While AFSC 3C192 members perform similar duties and tasks as AFSC 3C172 personnel, there are a number of supervisory tasks which differentiate 9-skill level personnel from 7-skill level personnel (Table 12).

Summary

Progression in this career ladder follows a regular lateral pattern of highly technical job focus at the lower skill levels, with a broadening into supervision and management at the 7- and 9-skill levels. An emphasis is clearly seen in performing primarily the core job of the personnel functions at the 3-skill level, with some broadening into supervisory functions at the 7-skill level. Craftsmen at the 7-skill level are beginning to shift to supervisory jobs, but a good deal of their job time is still spent in the technical arena. Nine-skill level members perform the most tasks, which are a mixture of highly technical and supervisory tasks.

ANALYSIS OF AFMAN 36-2108 *SPECIALTY DESCRIPTIONS*

Survey data were compared to the AFMAN 36-2108 *Specialty Descriptions* for Electromagnetic Spectrum Managers, effective 31 October 1993. These specialty descriptions are intended to provide a broad overview of the duties and responsibilities of each skill level.

The 3-skill level specialty description is accurate in describing the technical aspects of Electromagnetic Spectrum Management. The description provides a solid overview of the duties and tasks involved with this skill level. The 7- and 9-skill level descriptions accurately reflect the technical and supervisory nature of these jobs. The descriptions for the different skill levels of this specialty are sufficient and do not warrant significant revision.

TABLE 6

PERCENT DISTRIBUTION OF SKILL LEVEL MEMBERS ACROSS CAREER LADDER JOBS

JOB	DAFSC 3C132 (N=7)	DAFSC 3C172 (N=41)	DAFSC 3C192 (N=2)
SPECTRUM COORDINATOR CLUSTER	86	90	100
GENERAL SPECTRUM COORDINATOR JOB	(43)	(37)	(0)
SPECTRUM ADVISOR JOB	(43)	(22)	(0)
SPECTRUM SUPERVISOR AND ENGINEER JOB	(0)	(29)	(100)
NOT GROUPED	14	10	0

TABLE 7

PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 3C132 (N=7)	DAFSC 3C172 (N=41)	DAFSC 3C192 (N=2)
A Performing General Spectrum Management Activities	37	38	37
B Performing Standard Frequency Action Format Activities	20	20	10
C Performing Communications-Electronics Systems Activities	1	5	5
D Performing Siting and Path Activities	1	2	7
E Performing Electromagnetic Compatibility (EMC) Activities	4	4	2
F Performing Electronic Warfare (EW) Activities	1	2	4
G Performing Management and Supervisory Activities	14	12	18
H Performing Training Activities	10	4	6
I Performing General Administrative and Technical Order System Activities	8	11	8
J Performing General Supply and Equipment Activities	5	3	3

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TABLE 8

REPRESENTATIVE TASKS PERFORMED BY DAFSC 3C132 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=7)
A46	Perform data base retrievals	100
A44	Perform computer startup and shutdown procedures	100
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	100
B82	Submit 5-year review actions	86
A45	Perform data base maintenance	86
B79	Coordinate frequency requests	86
B87	Submit new permanent frequency proposals	86
B81	Nominate frequencies for assignments	86
B88	Submit temporary frequency proposals	86
B84	Submit frequency modifications	86
A41	Notify users of frequency status	86
B90	Verify user requirements	86
A2	Analyze radio frequency (RF) data bases	86
B89	Verify that frequency assignments satisfy proposals	86
B83	Submit frequency deletions	86
A40	Notify users of frequency authorization and operational parameters	86
A57	Provide spectrum management guidance to customers	86
A30	Extract DD Form 1494 data for standard frequency action format (SFAF) preparation	86
B85	Submit frequency renewal actions	71
B76	Assign temporary frequencies	71
A75	Verify station classes	71
A72	Verify emission designators	71
A17	Determine station classes	71
A14	Determine emission designators	71
I279	Maintain administrative files	71
A51	Perform software updates or system backups	71
A66	Use Joint Spectrum Management System (JSMS) for Windows	71
A61	Research spectrum allocation data, National Telecommunications Information Agency (NTIA) manuals, or other applicable standards	71
E146	Participate in resolutions of radio frequency interferences (RFIs)	71

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY 3C172 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=41)
A57	Provide spectrum management guidance to customers	98
B79	Coordinate frequency requests	95
B90	Verify user requirements	95
B89	Verify that frequency assignments satisfy proposals	93
A41	Notify users of frequency status	93
A40	Notify users of frequency authorization and operational parameters	93
A46	Perform data base retrievals	90
A44	Perform computer startup and shutdown procedures	90
B88	Submit temporary frequency proposals	88
I268	Destroy classified materials	83
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	83
B81	Nominate frequencies for assignments	80
A56	Provide guidance on frequency supportability	80
E146	Participate in resolution of radio frequency interferences (RFIs)	80
B76	Assign temporary frequencies	78
I289	Safeguard classified materials	78
B77	Consolidate frequency requests	78
A45	Perform data base maintenance	78
A2	Analyze radio frequency (RF) data bases	78
A75	Verify station classes	78
A17	Determine station classes	78
A66	Use Joint Spectrum Management System (JSMS) for Windows	78
B87	Submit new permanent frequency proposals	76
B84	Submit frequency modifications	76
A30	Extract DD Forms 1494 data for standard frequency action format (SFAF) preparation	76
B82	Submit 5-year review actions	73
B83	Submit frequency deletions	73
I264	Annotate security forms for facilities or security containers	73
A61	Research spectrum allocation data, National Telecommunications Information Agency (NTIA) manuals, or other applicable standards	73
A29	Establish or maintain frequency management points-of-contact rosters	73
A14	Determine emission designators	73

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 3C132 AND DAFSC 3C172 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 3C132 (N=7)	DAFSC 3C172 (N=41)	DIFFERENCE
G198	Evaluate layouts of facilities	43	12	31
J301	Inventory ADPE	57	32	25
A51	Perform software updates and system backups	71	46	25
G204	Evaluate procedures for storage, inventory, or inspection of property items	29	5	24
J306	Maintain organizational equipment or supply records, such as custodian authorization/custody receipt listings (CA/CRLs)	29	7	22
G200	Evaluate maintenance or utilization of equipment, tools, parts, supplies or workspace	29	7	22
C104	Calculate satellite look angles	0	41	-41
A55	Process satellite access requests for UHF AFSATCOM systems	0	41	-41
C92	Analyze HF propagation charts	0	41	-41
A63	Review operational requirements documents (ORDs) or joint ORDs	0	41	-41
C118	Generate propagation charts using maximum usable frequency (MUF), lowest usable frequency (LUF), and frequency of optimum transmission (FOT) predictions	0	44	-44
E149	Review AFSIR or JSIR reports	0	44	-44
E138	Assist users in preparing Air Force Spectrum Interference Resolution (AFSIR) or Joint Spectrum Interference Resolution (JSIR) reports	14	59	-45

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY 3C192 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=2)
B90	Verify user requirements	100
G217	Plan deployments of equipment and personnel	100
B79	Coordinate frequency requests	100
B79	Assign temporary frequencies	100
B77	Consolidate frequency requests	100
B88	Submit temporary frequency proposals	100
B89	Verify that frequency assignments satisfy proposals	100
A27	Engineer tropo radio networks	100
A2	Analyze radio frequency (RF) data bases	100
B80	Establish or maintain frequency action suspense systems	100
F151	Perform spectrum deconfliction	100
A53	Prepare frequency annexes or appendices for plans	100
B81	Nominate frequencies for assignments	100
A56	Provide guidance on frequency supportability	100
A23	Engineer LMR networks	100
D127	Determine area coverages	100
A46	Perform data base retrievals	100
I272	Initiate classified reports, messages, or documents	100
I265	Compile data for records, reports, logs, or trend analyses	100
A72	Verify emission designators	100
B87	Submit new permanent frequency proposals	100
G175	Develop or establish work methods or procedures	100
D126	Convert military grid positions to LAT/LONG positions	100
A68	Use RBECS	100
A24	Engineer line-of-sight (LOS) radio networks	100
A30	Extract DD Form 1494 data for standard frequency action format (SFAF) preparation	100
A11	Assist in engineering tropospheric scatter (tropo) radio systems	100
A40	Notify users of frequency authorization and operational parameters	100
G124	Maintain or update contingency plans, mobility plans, or base support plans	100
D125	Convert latitude/longitude (LAT/LONG) positions to military grid positions	100
A1	Analyze DD Forms 1494, Application for Equipment Frequency Allocation	100

TABLE 12

TASKS WHICH BEST DIFFERENTIATE
BETWEEN DAFSC 3C172 AND DAFSC 3C192 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		DAFSC 3C172 (N=41)	DAFSC 3C192 (N=2)	DIFFERENCE
I271	Identify and report suspected security compromises	46	0	46
B86	Submit HF/ISB DCS entry frequency requests	37	0	37
A52	Prepare DD Forms 1494	37	0	37
A13	Coordinate computer systems requirements document (CSRD) impacts on RF spectrum with computer services officers (CSOs)	34	0	34
C112	Determine most desirable frequency bands	34	0	34
E148	Resolve intermodulation problems	32	0	32
G161	Conduct customer interface visits (CIVs)	29	0	29
D135	Read military grid maps	15	100	-85
G228	Supervise military personnel	15	100	-85
G169	Counsel subordinates concerning personal matters	12	100	-88
H248	Establish or maintain study reference files	12	100	-88
G224	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	12	100	-88
G203	Evaluate personnel for promotion, demotion, reclassification, or special awards	10	100	-90
G217	Plan deployments of equipment or personnel	10	100	-90
G202	Evaluate personnel for compliance with performance standards	10	100	-90
G159	Assign sponsors for newly assigned personnel	7	100	-93
G218	Plan equipment or facility maintenance requirements	7	100	-93

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TRAINING ANALYSIS

Occupational survey data are one of many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel in their first assignment. Factors which may be used in evaluating training include the overall description of the job being performed by first-assignment personnel and their overall distribution across career ladder jobs, percentages of first-job (1-24 months time in career field (TICF)) or first-assignment (1-48 months TICF) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Assignment Personnel

In this study, there are 29 members in their first assignment, representing 58 percent of the total survey sample. Figure 2 reflects the distribution of first-assignment personnel within the career ladder. Most of their duty time is spent on technical activities. Table 13 displays the relative percent of time spent on duties by first-assignment personnel. Reviewing the table, it is clearly evident that most first-assignment personnel are primarily performing tasks under Duty A (performing general spectrum management activities) and Duty B (performing standard frequency action format activities). First-assignment personnel are distributed mostly within the General Spectrum Coordination Job of the cluster, with lesser proportions in the Spectrum Advisor and Spectrum Supervisor and Engineer jobs.

Table 14 lists representative tasks performed by first-assignment personnel. Most tasks involve general spectrum management, such as verifying frequency status and providing guidance to customers concerning frequency use and maintenance.

DISTRIBUTION OF AFSC 3C1X2 FIRST-ASSIGNMENT PERSONNEL IN CLUSTER JOBS

GENERAL SPECTRUM COORDINATOR JOB 48%

NOT GROUPED 14%

SPECTRUM SUPERVISOR AND ENGINEER JOB 17%

SPECTRUM ADVISOR JOB 21%
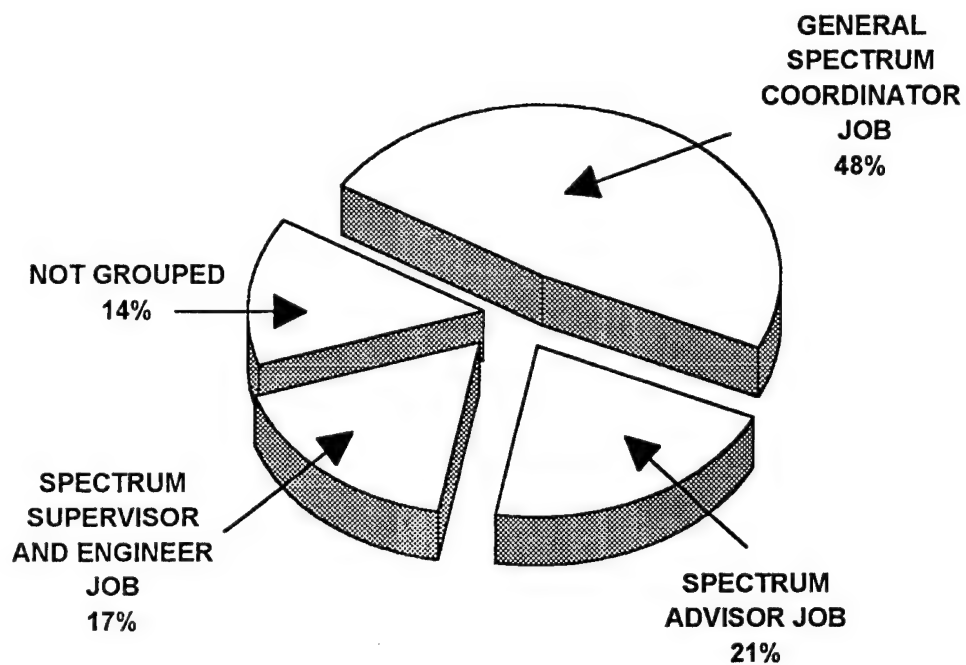
FIGURE 2

TABLE 13

RELATIVE PERCENT TIME SPENT ON DUTIES BY FIRST-ASSIGNMENT PERSONNEL
(1-48 MONTHS TICF)
(N=29)

DUTIES		PERCENT TIME SPENT
A	Performing General Spectrum Management Activities	38
B	Performing Standard Frequency Action Format Activities	23
C	Performing Communications-Electronics Systems Activities	3
D	Performing Siting and Path Activities	2
E	Performing Electromagnetic Compatibility (EMC) Activities	4
F	Performing Electronic Warfare (EW) Activities	2
G	Performing Management and Supervisory Activities	11
H	Performing Training Activities	2
I	Performing General Administrative and Technical Order System Activities	11
J	Performing General Supply and Equipment Activities	3

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY AFSC 3C1X2 FIRST-ASSIGNMENT PERSONNEL
(1-48 MONTHS TICF)

TASKS		PERCENT MEMBERS PERFORMING (N=29)
B79	Coordinate frequency requests	97
A41	Notify users of frequency status	97
A57	Provide spectrum management guidance to customers	97
B88	Submit temporary frequency proposals	93
B89	Verify that frequency assignments satisfy proposals	93
B90	Verify user requirements	93
A40	Notify users of frequency authorization and operational parameters	93
A46	Perform data base retrievals	86
A44	Perform computer startup and shutdown procedures	86
B81	Nominate frequencies for assignments	83
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	83
B76	Assign temporary frequencies	79
B87	Submit new permanent frequency proposals	79
B82	Submit 5-year review actions	79
B84	Submit frequency modifications	79
A72	Verify emission designators	79
I289	Safeguard classified materials	76
B83	Submit frequency deletions	76
A30	Extract DD Forms 1494 data for standard frequency action format (SFAF) preparation	76
A75	Verify station classes	76
E146	Participate in resolution of radio frequency interferences (RFIs)	76
B85	Submit frequency renewal actions	72
A2	Analyze radio frequency (RF) data bases	72
A29	Establish or maintain frequency management points-of-contact rosters	73
A17	Determine station classes	78

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist operations training school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-assignment personnel training, along with a measure of the difficulty of the JI tasks. When combined with data on the percentages of first-assignment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-assignment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

Table 15 presents tasks with the highest TE ratings for AFSC 3C1X2 first-job airmen (1-24 months TICF) and first-assignment airmen (1-48 months TICF), while Table 16 displays those tasks AFSC 3C1X2 raters judged to be most difficult to learn how to do. For example, TE raters (refer to Table 15) reported that tasks, such as using Joint Spectrum Management Systems for Windows, requires a lot of training emphasis and from the data, most airmen in their first job and within their first assignment are performing these tasks. Table 16 shows TD raters reported frequency engineering tasks to be among the most difficult tasks to learn. However, due to the low numbers of individuals performing these type of tasks, these tasks would be inappropriate for including in a technical resident curriculum and are more appropriately taught as an OJT item.

Various lists of tasks, accompanied by TE and TD ratings, are contained in the TRAINING EXTRACT package and should be reviewed in detail by operations training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 15

TASKS WITH HIGHEST TRAINING EMPHASIS RATINGS

TASKS		TRAINING EMPHASIS	PERCENT MEMBERS PERFORMING		TASK DIFFICULTY
			1ST JOB	1ST ASSIGNMENT	
A66	Use Joint Spectrum Management Systems for Windows	8.03	70	69	5.63
B88	Submit temporary frequency proposals	7.39	90	93	4.90
B82	Submit 5-year review actions	7.23	80	79	4.53
B84	Submit frequency modifications	7.19	80	79	4.28
B87	Submit new permanent frequency proposals	7.13	80	79	5.00
A46	Perform data base retrievals	6.81	80	86	3.41
B89	Verify that frequency assignments satisfy proposals	6.77	90	93	4.49
B85	Submit frequency renewal actions	6.77	75	72	4.21
B83	Submit frequency deletions	6.74	80	76	4.02
B90	Verify user requirements	6.61	90	93	4.67
A14	Determine emission designators	6.58	60	69	3.14
A17	Determine station classes	6.48	65	72	3.21
B77	Consolidate frequency requests	6.39	65	62	4.68
B79	Coordinate frequency requests	6.23	95	97	4.83
A45	Perform data base maintenance	6.16	65	69	3.73
A72	Verify emission designators	6.10	80	79	4.03
B81	Nominate frequencies for assignments	6.10	75	83	5.13
A2	Analyze radio frequency (RF) data bases	6.06	70	72	4.81
A50	Perform SFAF validation using EFRRS	5.81	45	52	4.26
A75	Verify station classes	5.77	75	76	3.60
F151	Perform spectrum deconfliction	5.74	55	55	5.82
B76	Assign temporary frequencies	5.71	80	79	4.40
A30	Extract DD Forms 1494 data for standard frequency action format (SFAF) preparation	5.61	80	76	3.91

TE MEAN = 2.71; S.D. = 1.73 (HIGH = 4.44)
TD MEAN = 5.00; S.D. = 1.00 (HIGH = 6.00)

TABLE 16

TASKS WITH HIGHEST TASK DIFFICULTY RATINGS

TASKS		TASK DIFFICULTY	PERCENT MEMBERS PERFORMING					TRAINING EMPHASIS
			1ST JOB	1ST ASN	3C132	3C172	3C192	
A5	Assist in engineering ground mobile forces/super high frequency (GMF/SHF) satellite communications (SATCOM) systems	7.69	25	21	14	32	50	3.26
A39	Manipulate Revised Battlefield Electronic Communications-Electronics Operation Instructions (CEOI) System (RBECS) data to ensure compatibility with other software applications	7.31	5	10	0	17	100	3.42
A25	Engineer NAVAIDS	7.25	15	14	14	12	50	3.23
A26	Engineer radar networks	7.09	15	14	0	17	100	2.77
A21	Engineer GMF/SMF SATCOM networks	7.08	15	14	0	17	50	2.84
A10	Assist in engineering radar systems	7.01	15	17	0	27	50	3.32
A9	Assist in engineering navigational aids (NAVAIDS) systems	7.00	15	21	14	24	50	3.45
A52	Prepare DD Form 1494	6.91	40	41	29	37	0	3.26
A68	Use RBECS	6.82	15	17	0	22	100	4.71
A4	Assist in engineering commercial SATCOM systems	6.77	15	14	14	15	50	1.39
A20	Engineer commercial SATCOM networks	6.64	10	10	0	7	60	1.61
E141	Determine electromagnetic compatibility (EMC) with other user requirements	6.62	30	31	14	44	50	4.26
C106	Calculate total propagation losses (TPLs)	6.58	10	10	0	15	50	3.42
A11	Assist in engineering tropospheric scatter (tropo) radio systems	6.58	10	17	0	32	100	4.13

TD MEAN = 5.00; S.D. = 1.00 (HIGH = 6.00)
TE MEAN = 2.73; S.D. = 1.73 (HIGH = 4.44)

Specialty Training Standard (STS)

A comprehensive review of STS 3C1X2, dated April 1997, compared STS items to survey data (based on the assistance from SMEs in matching JI tasks to STS elements). A complete computer listing displaying the percent members performing tasks, TE and TD ratings for each task, along with the STS matching, has been forwarded to the operations training school for their review of the training documents.

Typically, STS sections and subsections matched to tasks which have sufficiently high TE and TD ratings, and are performed by at least 20 percent of personnel in appropriate experience or skill-level groups (such as first-assignment (1-48 months TICF) and 3- and 7-skill level groups), are considered to be supported and should be considered for inclusion in the STS. Likewise, paragraphs having tasks with less than 20 percent members performing across all of the criterion groups should be considered for deletion from the STS.

STS paragraphs containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623 (i.e., include tasks performed or knowledge required by 20 percent or more of the personnel in a skill level (criterion group) of the AFS).

In general, most STS paragraphs were supported in that tasks matched to the STS paragraphs had 20 percent of at least one criterion group performing the matched tasks. Table 17 shows the full number of STS 3C1X2 paragraphs which do not meet the 20 percent criterion standard. A large proportion of these items deal with technical aspects of antennas. This subject should be scrutinized by training personnel to determine any needed changes in STS coverage areas. STS items not meeting this standard are not recommended for retention. Also, a very small number of technical tasks were not matched to the current 3C1X2 STS. Those tasks not matched are shown in Table 18. Training personnel and SMEs should review these and other unreferenced tasks to determine their appropriateness for inclusion in the STS.

Under and overtraining of STS items during training are also pertinent issues to consider. Concerning undertraining, SMEs should review a number of STS paragraphs in which higher numbers of personnel perform tasks matched to these paragraphs, yet they are not taught formally in the course (receiving a "-" proficiency code in the STS). For example, for paragraph 7f(6) involving researching J12 database listings, 86 percent of 3-skill level personnel perform related tasks, yet no formal instruction is given. Similarly, for paragraph 12a(4) concerning assigning frequency assignments in SFAF format to very high frequency/ultra high frequency AM air-ground-air communications, 30 percent of first-job airmen perform related tasks, yet received no training in the formal course. Thus, there are a number of STS paragraphs which should be reviewed for increased formal training. See Table 19 for more examples of undertrained STS paragraphs.

Overtraining criteria for matched STS items include those having matched tasks which reflect less than 30 percent members performing for first-job and first-assignment groups and a STS proficiency code requiring both task performance and knowledge levels. A number of different STS items were found to meet the above criteria. These items are not seen as items which may be dropped from the STS, but rather the training proficiency levels should be reviewed so that a more appropriate level can be assigned for training that particular course item. A list of the items is shown in Table 20.

TABLE 17

STS ITEMS NOT SUPPORTED BY SURVEY DATA

STS ITEMS/TASKS	3-LVL PROF CODE	TNG EMP	1ST JOB	PERCENT MEMBERS PERFORMING			TSK DIFF
				1ST ASN	3C132	3C172	
10b(4). Calculate fade margin	B						
C102 Calculate receiver sensitivities		3.81	10	10	0	12	6.21
10c(8). Effective Isotropic Radiated Power (EIRP)	B						
C97 Calculate effective isotropic radiated power (EIRP)		3.77	15	14	0	17	5.95
10d(2). Antenna efficiency	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(3). Antenna waves	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(4). Antenna selection considerations	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(5) Mutual interference	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(7). Impedance matching	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(8). Resonant & non resonant antennas	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(9). Law of reciprocity	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(10). Polarization	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28
10d(11). Relationship of antenna height and take off angle	B						
C94 Calculate antenna characteristics		3.71	10	10	0	17	6.28

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TABLE 17 (CONTINUED)

STS ITEMS NOT SUPPORTED BY SURVEY DATA

STS ITEMS/TASKS	3-LVL PROF CODE	TNG EMP	1ST JOB	PERCENT MEMBERS PERFORMING				TSK DIFF
				1ST ASN	3C132	3C172		
10d(12). Electrical length	B							
C94 Calculate antenna characteristics		3.71	10	10	0	17		6.28
10d(13). Physical length	B							
C94 Calculate antenna characteristics		3.71	10	10	0	17		6.28
10d(14). Half power point	B							
C94 Calculate antenna characteristics		3.71	10	10	0	17		6.28
10e(1). Radio wave propagation	B							
C95 Calculate antenna field strengths		3.35	10	10	0	12		6.50
10e(3). Refraction	B							
D131 Determine shielding or obstruction angles		3.52	10	10	0	15		5.81
10e(4). Reflection	B							
D131 Determine shielding or obstruction angles		3.52	10	10	0	15		5.81
10e(5). Diffraction	B							
D131 Determine shielding or obstruction angles		3.52	10	10	0	15		5.81
10e(6). Knife edge diffraction	B							
D131 Determine shielding or obstruction angles		3.52	10	10	0	15		5.81
16f(1). DoD RADHAZ program	A							
E145 Identify radiation hazards (RADHAZ)		3.55	10	10	0	12		5.79
16i(1). Regulated tolerances standards for communication equipment	-							
E144 Identify proper tolerances of equipment		2.65	5	7	0	12		5.98
16i(2). Determine the proper tolerances of equipment	-							
E144 Identify proper tolerances of equipment		2.65	5	7	0	12		5.98

TABLE 18

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
GROUP MEMBERS AND NOT REFERENCED TO THE STS

			PERCENT MEMBERS PERFORMING					
TASKS		1ST JOB (N=20)	1ST ASN (N=29)	3C132 (N=7)	3C172 (N=41)	TNG EMP	TASK DIFF	ATI
A57	Provide spectrum management guidance to customers	95	97	86	98	4.87	5.31	18
B89	Verify that frequency assignments satisfy proposals	90	93	86	93	6.77	4.49	18
B90	Verify user requirements	90	93	86	95	6.61	4.67	18
B76	Assign temporary frequencies	80	79	71	78	5.71	4.40	18
B77	Consolidate frequency requests	65	62	57	78	6.39	4.68	18
E139	Calculate harmonic frequencies	45	38	43	37	4.29	5.59	15
A37	Implement customer education programs	45	52	43	63	3.65	4.66	17
A18	Develop customer education programs	35	41	29	59	3.55	4.62	15
D136	Read topographic maps	30	34	43	37	4.23	4.99	15

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TABLE 19

EXAMPLES OF POSSIBLE UNDERTRAINED STS ITEMS

STS ITEMS/TASKS	3-LVL CODE	TNG EMP	1ST JOB	1ST ASN	3C132	3C172	TSK DIFF	ATI
			PERCENT MEMBERS PERFORMING					
7d. DoD Spectrum Usage	-							
A40 Notify users of frequency authorization and operational parameters		4.81	90	93	86	93	4.02	18
A41 Notify users of frequency status		4.23	95	97	86	93	3.10	8
7f(5). Research Frequency Application Index	-							
A73 Verify need for equipment certification		4.61	50	52	57	54	4.50	18
7f(6). Research J12 Database Listing	-							
A30 Extract DD Form 1494 data for standard frequency action format preparation		5.61	80	76	86	76	3.91	13
A70 Use spectrum certification system (SCS) software		5.39	50	55	57	59	5.82	18
A15 Determine need for equipment certification		4.42	45	48	57	54	4.17	15
7f(7). Complete an Automated DD Form 1494	-							
A71 Verify data on DD Form 1494		5.29	65	59	43	59	5.91	18
A52 Prepare DD Form 1494		3.26	40	41	29	37	6.91	15
7g(3). Coordination agencies	-							
B79 Coordinate frequency requests		6.23	95	97	86	95	4.83	18
11b(8). Great Circle Path	-							
A6 Assist in engineering high frequency (HF) radio systems		4.55	30	31	29	46	5.80	12
11g(3). Produce HF groundwave propagation prediction products								
A6 Assist in engineering high frequency (HF) radio systems		4.55	30	31	29	46	5.80	12
11g(4). Produce HF groundwave propagation prediction products using an automated method	-							
A6 Assist in engineering high frequency (HF) radio systems		4.55	30	31	29	46	5.80	12
11h(2). Produce HF Air/Ground/Air propagation products using a manual method	-							
A3 Assist in engineering air-to-air or air-to-ground radio systems		4.65	30	34	29	46	6.33	12
A6 Assist in engineering high frequency (HF) radio systems		4.55	30	31	29	46	5.80	12

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TABLE 20

POSSIBLE OVERTRAINED STS ITEMS

STS ITEMS/TASKS	3-LVL CODE	TNG EMP	PERCENT MEMBERS PERFORMING				TSK DIFF	ATI
			1ST JOB	1ST ASN	3C132	3C172		
8f(4)(a). Use CEOI Module	2b							
A63 Use RBECS		4.71	15	17	0	22	6.82	11
A39 Manipulate Revised Battlefield Electronic Communications-Electronics Operations Instruction (CEOI) System (RBECS) data to ensure compatibility with other software applications		3.42	5	10	0	17	7.31	7
13c(3). Calculate the total propagation loss (TPL) of troposystems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
C106 Calculate total propagation losses (TPLs)		3.42	10	10	0	15	6.58	7
13c(4). Calculate the receive signal (RSL) for troposystems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
C103 Calculate receive signal levels (RSLs)		3.68	10	10	0	17	6.47	7
13c(5). Calculate the median receiver input signal level for troposcatter systems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
C110 Determine median receiver input signal levels		3.58	15	14	0	20	6.45	7
13c (6). Calculate the minimum receiver input signal level for troposcatter systems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
C111 Determine minimum receiver input signal levels		3.84	10	10	0	15	6.56	7

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TABLE 20 (CONTINUED)

POSSIBLE OVERTRAINED STS ITEMS

| STS ITEMS/TASKS | 3-LVL CODE | TNG EMP | PERCENT MEMBERS PERFORMING | | | | TSK DIFF | ATI |
			1ST JOB	1ST ASN	3C132	3C172		
13c(7). Calculate the fade margin and reliability for troposcatter systems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
13c(8). Calculate the total path loss for troposcatter systems	3c							
A11 Assist in engineering tropospheric scatter (tropo) radio systems		4.13	10	17	0	32	6.58	7
A27 Engineer tropo radio networks		3.84	10	14	0	22	6.46	7
D129 Determine path losses		3.48	10	10	0	20	5.94	7
15a(5). Complete SFAF proposal transaction to support mission needs for Radar Systems	3c							
A10 Assist in engineering radar system		3.32	15	17	0	27	7.01	7
A26 Engineer radar networks		2.77	15	14	0	17	7.09	7
15b(4). Complete SFAF proposal transactions to support mission needs for NAVAIDS	3c							
A9 Assist in engineering navigational aids (NAVAIDS) systems		3.45	15	21	14	24	7.00	7
A25 Engineer NAVAIDS		3.23	15	14	14	12	7.25	7
17c(8)(r). Produce a JCEOI using RBECS and the AN/SCZ-9 Random Data Generator	3c							
A68 Use RBECS		4.71	15	17	0	22	6.82	11
A39 Manipulate Revised Battlefield Electronic Communications-Electronics Operations Instruction (CEOI) System (RBECS) data to ensure compatibility with other software applications		3.42	5	10	0	17	7.31	7
17d(2)(b). Assign Frequencies	3c							
A35 Identify tactical data link requirements		2.84	10	10	0	20	5.54	7
A33 Identify requirements for air integrated tasking order (ITO) inputs		2.71	20	21	14	27	6.08	7
A34 Identify requirements for integrated taking order (ITO) inputs		2.03	20	14	14	15	5.75	2
17d(2)(c). Input JCEOI data	3c							
A31 Identify call-sign or call-word requirements		2.61	25	28	14	34	3.97	1

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey to provide indications of job satisfaction.

Table 21 presents job satisfaction data for AFSC 3C1X2 TICF groups, together with TICF data for a comparative sample of Direct Support career ladders surveyed in 1996. Across all three TICF groups, the AFSC 3C1X2 personnel rated their job as significantly more interesting than the comparative sample. The perception of job interest, utilization of talents, utilization of training, and sense of accomplishment gained from work are generally rated higher than the comparative sample. Reenlistment intentions are rated relatively equal for AFSC 3C1X2 first-assignment personnel as the comparative sample.

An indication of how job satisfaction perceptions have changed over time is provided in Table 22, where again TICF data for the current survey respondents are presented, along with data from the last OSR. Reviewing this table, current survey satisfaction ratings for job interest and perceived utilization of talents are all higher than previous first- and third-assignment groups. Second-assignment personnel find their jobs equally interesting as in the past survey, but fewer members feel their talents are being used on the job. Current first- and second-assignment groups rate training utilization much lower than the previous survey. Reenlistment intentions for first-assignment and career airmen are higher than the previous survey, while second-assignment airmen rate reenlistment intentions slightly lower.

In Table 23, a review of the job satisfaction data for personnel in the specialty jobs identified in this survey reveals that airmen in all three jobs responded very positively to all the indicators listed. However, members of the Spectrum Advisor Job indicated lower reenlistment intentions than members of other jobs.

TABLE 21

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 3C1X2 TICF GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TICF		49-96 MONTHS TICF		97+ MONTHS TICF	
	AFSC 3C1X2 (N=29)	COMP SAMPLE (N=62)	AFSC 3C1X2 (N=12)	COMP SAMPLE (N=141)	AFSC 3C1X2 (N=9)	COMP SAMPLE (N=199)
EXPRESSED JOB INTEREST						
INTERESTING	79	60	83	51	89	69
SO-SO	10	18	17	21	11	15
DULL	10	22	0	28	0	15
PERCEIVED USE OF TALENTS						
FAIRLY WELL TO PERFECT	79	73	83	65	100	76
NONE TO VERY LITTLE	21	27	17	34	0	24
PERCEIVED USE OF TRAINING						
FAIRLY WELL TO PERFECT	65	70	84	65	100	64
NONE TO VERY LITTLE	34	30	17	35	0	36
SENSE OF ACCOMPLISHMENT FROM JOB						
SATISFIED	66	56	83	52	78	63
NEUTRAL	17	10	0	13	11	12
DISSATISFIED	17	34	17	35	11	25
REENLISTMENT INTENTIONS						
YES OR PROBABLY YES	79	81	50	63	44	54
NO OR PROBABLY NO	7	13	0	31	0	14
WILL RETIRE	14	6	50	6	56	32

* Comparative sample of Direct Support lateral career ladders surveyed in 1996 includes data for AFSC 3E6X1, operations

TABLE 22

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 3C1X2 TICF GROUPS IN CURRENT STUDY TO PREVIOUS STUDY
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TICF		49-96 MONTHS TICF		97+ MONTHS TICF	
	AFSC 3C1X2 (N=29)	1991 AFSC 492X2 (N=37)	AFSC 3C1X2 (N=12)	1991 AFSC 492X2 (N=20)	AFSC 3C1X2 (N=9)	1991 AFSC 492X2 (N=14)
EXPRESSED JOB INTEREST						
INTERESTING	79	59	83	85	89	64
SO-SO	10	16	17	15	11	29
DULL	10	16	0	0	0	0
PERCEIVED USE OF TALENTS						
FAIRLY WELL TO PERFECT	79	67	83	90	100	92
NONE TO VERY LITTLE	21	24	17	10	0	0
PERCEIVED USE OF TRAINING						
FAIRLY WELL TO PERFECT	65	95	84	95	100	85
NONE TO VERY LITTLE	34	5	17	5	0	7
SENSE OF ACCOMPLISHMENT FROM JOB						
SATISFIED	66	*	83	*	78	*
NEUTRAL	17	*	0	*	11	**
DISSATISFIED	17	*	17	*	11	*
REENLISTMENT INTENTIONS						
YES OR PROBABLY YES	79	65	50	55	44	29
NO OR PROBABLY NO	7	3	0	10	0	0
WILL RETIRE	14	22	50	35	56	64

* Information not included in previous survey

** Previous survey may not total 100% due to rounding

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TABLE 23

JOB SATISFACTION INDICATORS FOR AFSC 3C1X2 JOBS
(PERCENT MEMBERS RESPONDING)

	SPECTRUM COORDINATION CLUSTER (N=45)	GENERAL SPECTRUM COORDINATOR JOB (N=18)	SPECTRUM ADVISOR JOB (N=12)	SPECTRUM SUPERVISOR & ENGINEER JOB (N=14)
EXPRESSED JOB INTEREST				
INTERESTING	82	83	75	86
SO-SO	11	6	17	14
DULL	7	11	8	0
PERCEIVED USE OF TALENTS				
FAIRLY WELL TO PERFECT	84	78	83	93
NONE TO VERY LITTLE	16	22	17	7
PERCEIVED USE OF TRAINING				
FAIRLY WELL TO PERFECT	80	78	75	93
NONE TO VERY LITTLE	20	22	25	7
SENSE OF ACCOMPLISHMENT FROM JOB				
SATISFIED	71	72	50	93
NEUTRAL	11	11	17	7
DISSATISFIED	18	17	33	0
REENLISTMENT INTENTIONS				
YES OR PROBABLY YES	62	78	42	57
NO OR PROBABLY NO	4	6	8	0
WILL RETIRE	33	17	50	43

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SPECIAL ISSUES

Each occupational analysis project allows scientists the opportunity to answer specific questions which are asked by various interested parties throughout the Air Force. In this instance, questions regarding differences in job duties and tasks between Continental United States (CONUS) versus overseas personnel, personnel in different MAJCOMs, and personnel who are deployed are important for analysis. Each of these issues are discussed in turn.

CONUS/Overseas Analysis

Table 24 shows a number of different demographic variables as they relate to differences between CONUS personnel and those stationed overseas. Personnel stationed overseas perform slightly more tasks and spend relatively more time performing general spectrum management activities (see Table 25). Overseas personnel are also found to have more experience in the Electromagnetic Spectrum Management career field, averaging just under 8 years in the career field. CONUS personnel average just under 2 years in the career field. Along with this experience difference, more senior NCOs comprise the overseas portion of the sample (see Table 24).

As noted previously, overseas personnel perform more tasks, but not necessary many different tasks. A comparison of Tables 26 and 27 shows that both CONUS and overseas personnel perform similar tasks, with higher numbers of overseas personnel performing these tasks. Also, Table 28 shows definitive tasks that best differentiate between CONUS and overseas personnel. Again, tasks performed by overseas personnel pull heavily from Duty A (general spectrum management activities), while CONUS personnel perform a number of Administrative and Technical Order (Duty I) tasks which are performed by smaller percentages of overseas personnel. There is also a difference in deployment time between CONUS and overseas personnel, with 70 percent of overseas personnel being deployed at least 1-60 days per year, while 55 percent of CONUS personnel are deployed at least 1-60 days per year.

MAJCOM Analysis

Table 29 shows that the six largest MAJCOMs represented within this survey study spend fairly similar amounts of time on similar duties. However, the obvious exception to this finding are AETC personnel, who spend much more time on performing training activities (Duty H) than other MAJCOM groups. Analysis of the tasks performed within each MAJCOM group showed that some slight task differences do exist.

The two members of the study who belong to the USAFE MAJCOM perform a number of spectrum engineering tasks and other tasks within Duty A (performing general spectrum management activities) that members of other commands do not perform. These tasks include engineering tropo radio networks, engineering line-of-sight radio networks, and using technical

computer resources to help in spectrum management. Similarly, the three members of the AETC MAJCOM perform a larger number of training activities, as well as tasks that can be characterized as general supply and equipment activities (Duty J). Finally, the six members of the PACAF MAJCOM perform a number of Duty A tasks which are closely aligned with investigating the status of frequencies for operational use.

Joint Assignments

Analysis of demographic information regarding the entire survey study sample showed that only 8 percent of the entire sample currently serves in some form of joint assignment with other U.S. military forces or forces of another country. Those personnel who do serve within joint assignments are stationed with Headquarters NATO, Headquarters U.S. Special Operations Command, Headquarters Special Operations in Europe, and U.S. Forces in Korea.

TABLE 24

SELECTED COMPARISON DATA FOR AFSC 3C1X2 CONUS
AND OVERSEAS PERSONNEL

	7-LEVEL CONUS (N=31)	7-LEVEL OVERSEAS (N=10)
AVERAGE NUMBER OF TASKS PERFORMED	90	108
SPECIALTY JOB DISTRIBUTION:		
SPECTRUM COORDINATION CLUSTER	87%	100%
GENERAL SPECTRUM COORDINATION JOB	(39%)	(30%)
SPECTRUM ADVISOR JOB	(19%)	(30%)
SPECTRUM SUPERVISOR AND ENGINEER	(26%)	(40%)
PAYGRADE DISTRIBUTION		
E-5	26%	0%
E-6	42%	40%
E-7	32%	50%
E-8	0%	10%
AVERAGE MONTHS TICF:	43	93

TABLE 25

PERCENT TIME SPENT ON DUTIES BY
CONUS AND OVERSEAS GROUPS

DUTIES	7-LEVEL CONUS (N=31)	7-LEVEL OVERSEAS (N=41)
A Performing General Spectrum Management Activities	35	44
B Performing Standard Frequency Action Format Activities	20	21
C Performing Communications-Electronics Systems Activities	4	6
D Performing Siting and Path Activities	2	2
E Performing Electromagnetic Compatibility (EMC) Activities	3	4
F Performing Electronic Warfare (EW) Activities	3	2
G Performing Management and Supervisory Activities	13	9
H Performing Training Activities	4	1
I Performing General Administrative and Technical Order System Activities	12	7
J Performing General Supply and Equipment Activities	3	2

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TABLE 26

REPRESENTATIVE TASKS FOR 7-SKILL LEVEL CONUS PERSONNEL

PRIMARY PAYGRADE: E-6 (42%), E-7 (32%)
LOCATION: MAJOR COMMAND (19%), COMPUTER SUPPORT (16%)
AVERAGE # OF TASKS: 90
AVERAGE TIPJ: 2 YEARS
MAJCOM: ACC (45%)
DEPLOYMENT: 26% DEPLOYED 1-60 DAYS, 3% 61-120 DAYS, 26% MORE THAN 120 DAYS
              PER YEAR

TASKS		PERCENT MEMBERS PERFORMING (N=31)
A57	Provide spectrum management guidance to customers	96
B79	Coordinate frequency requests	94
B90	Verify user requirements	94
B89	Verify that frequency assignments satisfy proposals	90
A41	Notify users of frequency status	90
A40	Notify users of frequency authorization and operational parameters	90
A46	Perform data base retrievals	87
A44	Perform computer startup and shutdown procedures	87
B88	Submit temporary frequency proposals	84
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	84
I268	Destroy classified materials	81
I289	Safeguard classified materials	81
A75	Verify station classes	81
A72	Verify emission designators	81
A66	Use Joint Spectrum Management System (JSMS) for Windows	77
I264	Annotate security forms for facilities or security containers	77
B76	Assign temporary frequencies	77
B77	Consolidate frequency requests	74
A56	Provide guidance on frequency supportability	74
E146	Participate in resolution of radio frequency interferences (RFIs)	74
B81	Nominate frequencies for assignments	74
B87	Submit new permanent frequency proposals	71
B82	Submit new 5-year review actions	71
B84	Submit frequency modifications	71

TABLE 27

REPRESENTATIVE TASKS FOR 7-SKILL LEVEL OVERSEAS PERSONNEL

PRIMARY PAYGRADE: E-7 (50%), E-6 (40%)
LOCATION: INSTALLATION SPECTRUM MGMT OFFICE (20%), OTHER (20%)
AVERAGE # OF TASKS: 108
AVERAGE TIPJ: 3.5 YEARS
MAJCOM: PACAF (40%)
DEPLOYMENT: 40% DEPLOYED 1-60 DAYS, 30% 60 OR MORE DAYS, 10% 120 DAYS OR
                      MORE PER YEAR

TASKS		PERCENT MEMBERS PERFORMING (N=10)
A57	Provide spectrum management guidance to customers	100
B79	Coordinate frequency requests	100
B90	Verify user requirements	100
B89	Verify that frequency assignments satisfy proposals	100
A41	Notify users of frequency status	100
A40	Notify users of frequency authorization and operational parameters	100
A46	Perform data base retrievals	100
A44	Perform computer startup and shutdown procedures	100
B88	Submit temporary frequency proposals	100
A56	Provide guidance on frequency supportability	100
E146	Participate in resolution of radio frequency interferences (RFIs)	100
B81	Nominate frequencies for assignments	100
A2	Analyze radio frequency (RF) data bases	100
A45	Perform data base maintenance	100
A29	Establish or maintain frequency management points of contact rosters	100
I268	Destroy classified materials	90
B77	Consolidate frequency requests	90
B87	Submit new permanent frequency proposals	90
B83	Submit frequency deletions	90
B84	Submit frequency modifications	90
B85	Submit frequency renewal actions	90
A61	Research spectrum allocation data, National Telecommunications Information Agency (NTIA) manuals, or other applicable standards	90
A30	Extract DD Forms 1494 data for standard frequency action format (SFAF) preparation	90
A17	Determine station classes	90
A7	Assist in engineering land mobile radio (LMR) systems	90

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TABLE 28

TASKS WHICH BEST DIFFERENTIATE BETWEEN CONUS AND OVERSEAS PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		CONUS (N=31)	OVERSEAS (N=10)	DIFFERENCE
G223	Review drafts of policy directives, instructions, or manuals	58	10	48
H255	Maintain training records or files	45	0	45
I280	Maintain or update status indicators, such as boards, graphs or charts	52	10	42
I277	Inventory classified materials	52	20	32
I267	Coordinate requests for TDY orders with appropriate agencies	61	30	31
I270	Establish accountability records for classified materials or documents	48	20	28
A67	Use JSMS, other than for Windows	29	90	-61
B86	Submit HF/ISB DCS entry frequency requests	23	80	-57
A53	Prepare frequency annexes or appendices for plans	29	80	-51
A6	Assist in engineering high frequency (HF) radio systems	35	80	-45
A51	Perform software updates or system backups	35	80	-45
A33	Identify requirements for air tasking order (ATO) inputs	16	60	-44
A19	Engineer air-to-air or air-to-ground radio networks	16	60	-44
A60	Research impacts of potential spectrum reallocation	39	80	-41

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TABLE 29

PERCENT TIME SPENT ON DUTIES BY MAJCOM GROUPS

DUTIES	ACC (N=18) TASKS=110	AMC (N=6) TASKS=61	AFMC (N=8) TASKS=55	USAFE (N=2) TASKS=98	AETC (N=3) TASKS=62	PACAF (N=6) TASKS=134
A Performing General Spectrum Management Activities	40	38	31	37	22	41
B Performing Standard Frequency Action Format Activities	19	24	21	30	24	16
C Performing Communications-Electronics Systems Activities	6	5	2	3	0	6
D Performing Siting and Path Activities	2	0	2	1	0	3
E Performing Electromagnetic Compatibility (EMC) Activities	4	3	3	3	2	5
F Performing Electronic Warfare (EW) Activities	2	2	5	1	0	2
G Performing Management and Supervisory Activities	13	14	11	10	12	15
H Performing Training Activities	5	6	3	2	22	2
I Performing General Administrative and Technical Order System Activities	8	10	16	11	9	7
J Performing General Supply and Equipment Activities	2	3	6	1	7	3

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IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents, as well as determining if AFSC 3C1X2 personnel are receiving the right training for their jobs. The survey analysis also hoped to answer specific questions regarding job differences between CONUS and Overseas personnel, personnel in different MAJCOMs, and personnel who serve in joint assignments.

Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder. Career ladder training documents appear, on the whole, to be well supported by survey data. However, some reinvestigation of STS items is recommended. As was pointed out in the **JOB SATISFACTION ANALYSIS** section, job satisfaction responses by AFSC 3C1X2 personnel reported the utilization of training is adequate, thus indicating support for the overall training system. Additionally, the career ladder progression is good, with the move from technical work at the 3-skill level to supervisory and management at the 7- and 9-skill levels.

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APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY
SPECIALTY JOB GROUPS

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TABLE A1

REPRESENTATIVE TASKS FOR 3CIX2 SPECTRUM COORDINATION JOB CLUSTER

	TASKS	PERCENT MEMBERS PERFORMING
B90	Verify user requirements	100
B79	Coordinate frequency requests	98
A46	Perform data base retrievals	98
B89	Verify that frequency assignments satisfy proposals	98
A57	Provide spectrum management guidance to customers	98
A40	Notify users of frequency authorization and operational parameters	97
A41	Notify users of frequency status	96
B88	Submit temporary frequency proposals	93
A44	Perform computer startup and shutdown procedures	93
B81	Nominate frequencies for assignments	91
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	89
A2	Analyze radio frequency data bases	86
A72	Verify emission designators	86
B87	Submit new permanent frequency proposals	84
A75	Verify station classes	84
A56	Provide guidance on frequency supportability	84
A17	Determine station classes	84
A66	Use Joint Spectrum Management System (JSMS) for Windows	84
A30	Extract DD Forms 1494 data for standard frequency format (SFAF) preparation	84

TABLE A2

REPRESENTATIVE TASKS FOR GENERAL SPECTRUM COORDINATOR JOB

PRIMARY PAYGRADE: E-5 (33%)
LOCATION: MAJCOM SPECT MGT (28%), INSTALLATION SPECT MGT (28%)
AVERAGE # OF TASKS: 52
AVERAGE TIPJ: 2 YEARS
MAJCOM: ACC (33%), AMC (28%)

TASKS		PERCENT MEMBERS PERFORMING (N=18)
B89	Verify that frequency assignments satisfy proposals	100
B79	Coordinate frequency requests	100
B90	Verify user requirements	100
A41	Notify users of frequency status	100
A40	Notify users of frequency authorization and operational parameters	100
B88	Submit temporary frequency proposals	94
A46	Perform data base retrievals	94
B81	Nominate frequencies for assignments	94
A57	Provide spectrum management guidance to customers	94
B87	Submit new permanent frequency proposals	83
B82	Submit new 5-year review actions	83
B84	Submit frequency modifications	83
A44	Perform computer startup and shutdown procedures	83
A75	Verify station classes	83
A72	Verify emission designators	83
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	83
B76	Assign temporary frequencies	78
B85	Submit frequency renewal actions	78
B83	Submit frequency deletions	78

TABLE A3

REPRESENTATIVE TASKS OF THE 3C1X2 SPECTRUM ADVISOR JOB

PRIMARY PAYGRADE: E-6 (50%)
LOCATION: COMPUTER SUPPORT SQ (33%)
AVERAGE # OF TASKS: 103
AVERAGE TIPJ: 3 YEARS
MAJCOM: ACC, PACAF (25% EACH), AFMC (17%)

TASKS		PERCENT MEMBERS PERFORMING (N=12)
B79	Coordinate frequency requests	100
B90	Verify user requirements	100
A41	Notify users of frequency status	100
B88	Submit temporary frequency proposals	100
A46	Perform data base retrievals	100
B81	Nominate frequencies for assignments	100
B84	Submit frequency modifications	100
B83	Submit frequency deletions	100
I289	Safeguard classified materials	100
A56	Provide guidance on frequency supportability	100
A2	Analyze radio frequency (RF) data bases	100
I279	Maintain administrative files	100
A73	Verify need for equipment certification	100
A40	Notify users of frequency authorization and operational parameters	100
A57	Provide spectrum management guidance to customers	100
A30	Extract DD Form 1494 data for standard frequency action format (SFAF) preparation	100
E146	Participate in resolution of radio frequency interferences (RFIs)	100
A29	Establish or maintain frequency management points- of-contact rosters	100
B82	Submit new 5-year review actions	92
I268	Destroy classified materials	92
A15	Determine need for equipment certification	92
B77	Consolidate frequency requests	92
A45	Perform data base maintenance	92
B89	Verify that frequency assignments satisfy proposals	92
G162	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	92
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	92

TABLE A4

REPRESENTATIVE TASKS OF THE SPECTRUM SUPERVISOR AND ENGINEER JOB

PRIMARY PAYGRADE: E-7 (43%)
LOCATION: ACOMS (36%), COMBAT COMM SQ (21%)
AVERAGE # OF TASKS: 158
AVERAGE TIPJ: 2 YEARS
MAJCOM: ACC (57%), PACAF (21%)

TASKS		PERCENT MEMBERS PERFORMING (N=14)
B90	Verify user requirements	100
A46	Perform data base retrievals	100
A44	Perform computer startup and shutdown procedures	100
A56	Provide guidance on frequency supportability	100
A2	Analyze radio frequency (RF) data bases	100
B77	Consolidate frequency requests	100
B89	Verify that frequency assignments satisfy proposals	100
B76	Assign temporary frequencies	100
A7	Assist in engineering land mobile radio (LMR) systems	100
C116	Determine takeoff angles	100
C117	Distribute propagation products to users	100
A57	Provide spectrum management guidance to customers	100
A30	Extract DD Form 1494 data for standard frequency action format (SFAF) preparation	100
E146	Participate in resolution of radio frequency interferences (RFIs)	100
A66	Use Joint Spectrum Management System (JSMS) for Widows	100
C104	Calculate satellite look angles	100
A32	Identify frequency requirements for plans or annexes	93
A72	Verify emission designators	93
C119	Interpret computerized propagation products	93
I264	Annotate security forms for facilities or security containers	93
A8	Assist in engineering line-of-sight (LOS) radio systems	93
A6	Assist in engineering high frequency (HF) radio systems	93
I272	Initiate classified reports, messages, or documents	93
B79	Coordinate frequency requests	93
A40	Notify users of frequency authorization and operational parameters	93
I268	Destroy classified materials	93
B80	Establish or maintain frequency action suspense systems	93
A29	Establish or maintain frequency management points- of-contact rosters	93
G215	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	93
A61	Research spectrum allocation data, National Telecommunications Information Agency (NTIA) manuals, or other applicable standards	93
A3	Assist in engineering air-to-air systems and air-to-ground radio systems	93